

REMARKS

Pursuant to the present amendment, claim 7 has been amended and claims 9, 20 and 24 have been canceled. Thus, claims 1-8, 10-19 and 21-23 are pending in the present application. No new matter has been introduced by way of the present amendment. Reconsideration of the present application is respectfully requested in view of the amendments and arguments set forth herein.

Pursuant to the present amendment, claim 24 has been canceled as it is directed to a non-elected invention that was the subject of a previous restriction requirement. Applicants specifically reserve the right to pursue the subject matter defined by the canceled claim in a later filed application should they so desire.

In the Office Action, claims 8-9 and 19-20 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Pursuant to the present amendment, claims 9 and 20 have been canceled thereby rendering the Examiner's § 112 rejection of these claims as moot.

Applicants respectfully traverse the Examiner's § 112 rejection of claims 8 and 19. These dependent claims recite that the critical dimension is less than 100 nm. It is respectfully submitted that one skilled in the art would understand claims 8 and 19 to set an upper limit for the critical dimension. The undersigned is not aware of any requirement that mandates that a claim must also define a lower limit in this situation. It is respectfully submitted that as long as one skilled in the art can readily understand what is being claimed, that is all this required to satisfy the definiteness requirements of § 112. Applicants respectfully request that the § 112 rejection of claims 8 and 19 be withdrawn.

In the Office Action, claims 1-7, 10-18 and 21-23 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Laaksonen (U.S. Patent No. 6,362,111) in view of Kim (U.S. Patent No. 6,352,922). Applicants respectfully traverse the Examiner's rejections.

As the Examiner well knows, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); M.P.E.P. § 2142. Moreover, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); M.P.E.P. § 2143.03.

With respect to alleged obviousness, there must be something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561 (Fed. Cir. 1986). In fact, the absence of a suggestion to combine is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573 (Fed. Cir. 1997). The mere fact that the prior art can be combined or modified does not make the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01. The consistent criterion for determining obviousness is whether the prior art would have suggested to one of ordinary skill in the art that the process should be carried out

and would have a reasonable likelihood of success, viewed in the light of the prior art. Both the suggestion and the expectation of success must be founded in the prior art, not in the Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991; *In re O'Farrell*, 853 F.2d 894 (Fed. Cir. 1988); M.P.E.P. § 2142.

The Examiner concedes that the primary reference, Laaksonen, fails to teach a very fundamental aspect of the present invention. More specifically, the Examiner concedes that Laaksonen does not disclose determining an optical characteristic of the anti-reflective layer. Office Action, pp. 3-4. Based upon this admission, it is also necessarily true that Laaksonen does not disclose controlling an etch process to reduce the size of a resist feature based upon, among other things, an optical characteristic of the anti-reflecting coating layer, as recited in independent claims 1 and 14. In fact, independent claims 1 and 14 involve performing an etching process to reduce the initial size of a resist feature by controlling the etch process on the basis of three factors: (1) the initial size of the feature; (2) the desired critical dimension of the ultimate feature; and (3) at least one optical characteristic of the anti-reflecting coating layer. As the Examiner well knows, it is the entirety of the claim that must be obvious in view of the prior art. It is improper to merely pick and choose items from various prior art references and magically combine them to assert that the invention would have been obvious. A recent Federal Circuit case makes it crystal clear that, in an obviousness situation, the prior art must disclose each and every element of the claimed invention, and that any motivation to combine or modify the prior art must be based upon a suggestion in the prior art. *In re Lee*, 61 U.S.P.Q.2d 143 (Fed. Cir. 2002). Conclusory statements regarding common knowledge and common sense are insufficient to support a finding of obviousness. *Id.* at 1434-35. It is respectfully submitted that any attempt to assert that the entirety of the inventions defined by independent claims 1 and 14

are obvious in view of the prior art of record constitutes an impermissible use of hindsight using Applicants' disclosure as a roadmap.

It is beyond legitimate dispute that Laaksonen is completely silent with respect to controlling an etch process on the basis of the three factors recited in independent claims 1 and 14. There is certainly not even the slightest suggestion in Laaksonen to use an optical characteristic of the anti-reflecting coating to control the etching process to reduce the size of the resist feature. To be precise, Laaksonen discloses a process whereby the lateral dimension of both the resist feature 32 and the patterned BARC layer 30 are reduced. Col. 3, ll. 30-37. Thus, at the time Laaksonen performs the etching process to reduce the initial size of the pattern 40, there is very little of the BARC layer 30 present. Thus, it is unclear why one skilled in the art would be motivated to determine the optical characteristic of the small remaining portions of the BARC layer that are present at the time when Laaksonen discloses that an etching process is performed to reduce the lateral dimension of the pattern 40.

Even if the prior art of record were combined in the manner suggested by the Examiner, that combination of prior art would not disclose all of the limitations recited in claims 1 and 14. More specifically, the combination of Laaksonen and Kim does not disclose controlling the etching process to reduce the initial size of the photoresist feature based on the three above-identified factors. For at least the aforementioned reasons, it is respectfully submitted that independent claims 1 and 14 are allowable over the prior art of record.

It is also believed that dependent claims 6 and 17 are independently allowable over the art of record. According to these dependent claims, the etch process is further controlled by determining an actual critical dimension of the ultimate feature. At no point does the art of record, even if combined, disclose the inventions defined by these dependent claims. The art of record is simply silent with respect to use of the actual critical dimension for any control purpose

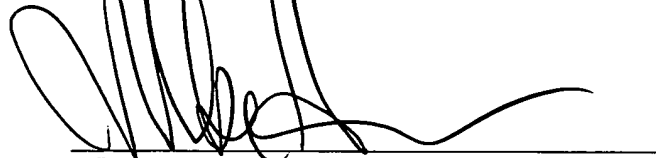
related to reducing the initial size of the photoresist feature. Accordingly, any obviousness rejection is legally improper.

Dependent claims 7 and 18 are likewise believed to be allowable over the art of record. According to these claims, the method further comprises establishing a relationship between the optical characteristic of the anti-reflective coating layer and the initial size of the resist feature to obtain at least one correction coefficient. Such a methodology is not disclosed nor suggested by the prior art of record. Even if the prior art is combined in the manner suggested by the Examiner, such a combination of prior art does not disclose all of the limitations recited in these claims. Accordingly, any obviousness rejection based upon such a combination of prior art is legally improper.

For at least the aforementioned reasons, it is respectfully submitted that all pending claims are in condition for immediate allowance. The Examiner is invited to contact the undersigned attorney at (713) 934-4055 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "J. Mike Amerson", is written over a horizontal line.

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